

43. (New) The purified nucleic acid segment of claim 42, wherein the purified nucleic acid segment comprises at least 200 contiguous nucleotides of SEQ ID NO: 1, or its complement.
44. (New) The purified nucleic acid segment of claim 43, wherein the purified nucleic acid segment comprises at least 400 contiguous nucleotides of SEQ ID NO: 1, or its complement.
45. (New) The purified nucleic acid segment of claim 44, wherein the purified nucleic acid segment comprises the nucleotide sequence of SEQ ID NO: 1, or its complement.
46. (New) The purified nucleic acid segment of claim 37, wherein the purified nucleic acid segment comprises at least one *B. lonestari* sp. nov.-specific nucleotide selected from the group consisting of G70, G96, T141, A193, G199, G228, A231, T269, C270, T271, A273, A300, T308, G315, A376, G380, A406, G418, G423, G505, A510, G546, T572, and C603, or its complement.
47. (New) The purified nucleic acid segment of claim 37, wherein the purified nucleic acid segment comprises the nucleotide sequence of SEQ ID NO: 7, or its complement.
48. (New) The purified nucleic acid segment of claim 37, wherein the purified nucleic acid segment comprises the nucleotide sequence of SEQ ID NO: 8, or its complement.
49. (New) The purified nucleic acid segment of claim 37, wherein the purified nucleic acid segment encodes a polypeptide comprising the amino acid sequence of SEQ ID NO: 2, or its complement.

50. (New) An expression vector comprising a nucleic acid segment operably attached to a promoter, wherein the nucleic acid segment comprises at least 14 contiguous nucleotides of SEQ ID NO: 1, or its complement.
51. (New) The expression vector of claim 50, wherein the purified nucleic acid segment comprises at least 15 contiguous nucleotides of SEQ ID NO: 1, or its complement.
52. (New) The expression vector of claim 51, wherein the purified nucleic acid segment comprises at least 20 contiguous nucleotides of SEQ ID NO: 1, or its complement.
53. (New) The expression vector of claim 52, wherein the purified nucleic acid segment comprises at least 30 contiguous nucleotides of SEQ ID NO: 1, or its complement.
54. (New) The expression vector of claim 53, wherein the purified nucleic acid segment comprises at least 50 contiguous nucleotides of SEQ ID NO: 1, or its complement.
55. (New) The expression vector of claim 54, wherein the purified nucleic acid segment comprises at least 100 contiguous nucleotides of SEQ ID NO: 1, or its complement.
56. (New) The expression vector of claim 55, wherein the purified nucleic acid segment comprises at least 200 contiguous nucleotides of SEQ ID NO: 1, or its complement.
57. (New) The expression vector of claim 56, wherein the purified nucleic acid segment comprises at least 400 contiguous nucleotides of SEQ ID NO: 1, or its complement.
58. (New) The expression vector of claim 57, wherein the purified nucleic acid segment comprises the nucleotide sequence of SEQ ID NO: 1, or its complement.
59. (New) The expression vector of claim 50, further defined as a viral vector.

60. (New) The viral vector of claim 59, further defined as an adenoviral vector.
61. (New) The expression vector of claim 50, further defined as a plasmid vector.
62. (New) A host cell comprising an expression vector comprising a nucleic acid segment operably attached to a promoter, wherein the nucleic acid segment comprises at least 14 contiguous nucleotides of SEQ ID NO: 1, or its complement..
63. (New) The host cell of claim 62, wherein the host cell is *E. coli* LE392
64. (New) A kit for the detection of *B. lonestari* sp. nov. in a sample, the kit comprising:
- (a) a carrier adapted to receive a plurality of containers in close confinement therewith;
 - (b) a first container comprising a nucleic acid sequence of at least 14 contiguous nucleotides of SEQ ID NO: 1, or its complement.
65. (New) The nucleic acid sequence of claim 64, wherein the purified nucleic acid segment comprises at least one *B. lonestari* sp. nov.-specific nucleotide selected from the group consisting of G70, G96, T141, A193, G199, G228, A231, T269, C270, T271, A273, A300, T308, G315, A376, G380, A406, G418, G423, G505, A510, G546, T572, and C603.
66. (New) The nucleic acid sequence of claim 65, wherein the purified nucleic acid segment comprises at least 20 contiguous nucleotides of SEQ ID NO: 1, or its complement.
67. (New) The nucleic acid sequence of claim 66, wherein the purified nucleic acid segment comprises at least 100 contiguous nucleotides of SEQ ID NO: 1, or its complement.